

What is claimed is:

1. A magnetic head assembly including a magnetic head fabricated in a thin film forming process, wherein:

5       said magnetic recording head comprises:

          a substrate;

          a first magnetic core formed on said substrate;

          a second magnetic core formed in the condition with a front end portion thereof having a predetermined gap (referred to as a "magnetic gap" below) with respect to a front end portion of said first magnetic core and with a back end portion thereof connected to said first magnetic core; and

          a coil disposed between said first magnetic core and said second magnetic core for developing a magnetic flux between the front end portions of said first and second magnetic cores,

          a width of said second magnetic core at the front end portion thereof is formed equal to or smaller than that of said first magnetic core, and

          said second magnetic core is positioned at a leading side relative to said first magnetic core in a traveling direction on a magnetic recording medium.

25       2. The magnetic head assembly as claimed in claim 1, wherein an auxiliary member is adhered to the magnetic recording head at the leading side and/or a trailing side in the traveling direction on the magnetic recording medium.

30       3. The magnetic head assembly as claimed in claim 1,

wherein a saturation magnetic flux density of a material of said first magnetic core is chosen to be larger than that of said second magnetic core.

5           4. The magnetic head assembly as claimed in claim 2, wherein a saturation magnetic flux density of a material of said first magnetic core is chosen to be larger than that of said second magnetic core.

10           5. The magnetic head assembly as claimed in claim 1, wherein said first magnetic core is made of two or more kinds of stacked films and a saturation magnetic flux density of a material of at least one film of the stacked films closest to said magnetic gap is chosen to be larger  
15 than that of said second magnetic core.

          6. The magnetic head assembly as claimed in claim 2, wherein said first magnetic core is made of two or more kinds of stacked films and a saturation magnetic flux  
20 density of a material of at least one film of the stacked films closest to said magnetic gap is chosen to be larger than that of said second magnetic core.

          7. A magnetic tape drive unit comprising a magnetic  
25 head assembly for recording signals on a tape shaped recording medium and tape driving means for making the tape shaped recording medium to travel along a predetermined traveling path, wherein:

          said magnetic head assembly comprises a magnetic  
30 recording head made by a thin film forming process;

          said magnetic recording head includes a substrate,

a first magnetic core formed on said substrate, a second magnetic core formed in a condition with a front end portion thereof having a predetermined gap (referred to as a "magnetic gap" below) with respect to a front end portion of said first magnetic core and with a back end portion thereof connected to said first magnetic core, and a coil disposed between said first magnetic core and said second magnetic core for developing a magnetic flux between end portions of said first and second magnetic  
5 cores;  
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a width of said second magnetic core at the front end portion is formed equal to or smaller than that of said first magnetic core; and

said second magnetic core is positioned at a leading side relative to said first magnetic core in a traveling direction on a tape shaped recording medium.  
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8. The magnetic tape drive unit as claimed in claim 7, wherein an auxiliary member is adhered onto said magnetic recording head at the leading side and/or a trailing side in the traveling direction on the magnetic recording medium.  
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9. The magnetic tape drive unit as claimed in claim 7, wherein a saturation magnetic flux density of a material of said first magnetic core is chosen to be larger than that of said second magnetic core.  
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10. The magnetic tape drive unit as claimed in claim 8, wherein a saturation magnetic flux density of a material of said first magnetic core is chosen to be  
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larger than that of said second magnetic core.

11. The magnetic tape drive unit as claimed in claim 7, wherein said first magnetic core comprises two or more kinds of stacked films and a saturation magnetic flux density of a material of at least one film of the stacked films closest to said magnetic gap is chosen to be larger than that of said second magnetic core.

12. The magnetic tape drive unit as claimed in claim 8, wherein said first magnetic core comprises two or more kinds of stacked films and a saturation magnetic flux density of a material of at least one film of the stacked films closest to said magnetic gap is chosen to be larger than that of said second magnetic core.

13. A magnetic disk drive unit comprising a magnetic head assembly for recording signals on a disk shaped recording medium and a rotary driving mechanism for rotating the disk shaped recording medium, wherein:  
said magnetic head assembly comprises a magnetic recording head fabricated in a thin film forming process;  
said magnetic recording head includes a substrate, a first magnetic core formed on said substrate, a second magnetic core formed in a condition with a front end portion thereof having a predetermined gap (referred to as a "magnetic gap" below) with respect to a front end portion of said first magnetic core and with a back end portion thereof connected to said first magnetic core, and a coil disposed between said first magnetic core and said second magnetic core for developing a magnetic flux

between the front end portions of said first and second magnetic cores;

a width of said second magnetic core at the front end portion thereof is equal to or smaller than that of  
5 said first magnetic core; and

said second magnetic core rather than said first magnetic core is positioned at a leading side in a traveling direction on a disk shaped recording medium.

10 14. The magnetic disk drive unit as claimed in claim 13, wherein an auxiliary member is adhered onto said magnetic recording head at the leading side and/or a trailing side in the traveling direction on the magnetic recording medium.

15 15. The magnetic disk drive unit as claimed in claim 13, wherein a saturation magnetic flux density of a material of said first magnetic core is chosen to be larger than that of said second magnetic core.

20 16. The magnetic disk drive unit as claimed in claim 14, wherein a saturation magnetic flux density of a material of said first magnetic core is chosen to be larger than that of said second magnetic core.

25 17. The magnetic disk drive unit as claimed in claim 13, wherein said first magnetic core comprises two or more kinds of stacked films and a saturation magnetic flux density of a material of at least one film of the  
30 stacked films closest to said magnetic gap is chosen to be larger than that of said second magnetic core.

18. The magnetic disk drive unit as claimed in  
claim 14, wherein said first magnetic core comprises two  
or more kinds of stacked films and a saturation magnetic  
5 flux density of a material of at least one film of the  
stacked films closest to said magnetic gap is chosen to  
be larger than that of said second magnetic core.